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APPROVAL OF UNDP ASSISTANCE TO A PROJECT OF THE DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

IPF:(1992-96) $24 992 000

(DRK/92/011) - Energy Efficiency Improvement

Date of approval by the AC:[1/]	9 December 1992
Expected duration:	Five years
Proposed executing agency:	Government (General Bureau for Cooperation with International Organization (GBCIO))
Government implementing agency:	Pyongyang Thermal Power Station, Centre for Rational Use of Energy, Electric Power System Planning Centre
Proposed UNDP contribution:	$2 740 000 Source of funds: IPF
Total UNDP budget:	$2 740 000

Project background

The economy of the Democratic People's Republic of Korea is highly energy intensive. The 1989 figure of the national energy consumption exceeds 2 tons of oil equivalent (TOE) per (US) $1000 of GNP generated, as compared to the world average of 0.5 TOE per (US) $1000. Major indigenous sources of energy in the country are coal and hydropower. Coal reserves are estimated at 70 to 90 billion tons; and the entire economy is dominated by coal, accounting for 83.9 per cent of primary energy use. Hence, greenhouse gas emissions from coal account for approximately 60 million tons per annum, and ash and slag about 20 to 30 million tons per annum, causing serious environmental problems.

The energy elasticity of the national economy is over 1.0 which indicates that the rate of growth of energy production has proceeded faster than the growth of GNP. However, demand has continued to exceed supply. One of the main causes for this is the inefficient utilization of energy in all sectors of the economy. At present, a cohesive framework for energy planning is lacking with approximately nine or ten organizations involved in various aspects of energy planning, production and distribution. Coordination amongst these organizations is weak. Other constraints in the sector include: inadequate electric power system planning tools; weak information structure; scarce skilled managerial and technical staff for policy making and design, implementation and operation of energy projects; and limited energy rationalization and efficiency enhancement measures at the consumer level.

The Government attaches the highest priority to the development of the energy sector as a prerequisite for sustainable economic and social development. Its strategy for the sector is twofold: firstly, the rapid increase of primary energy supply, especially of coal

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[1/] **This Fact Sheet reflects the status of the project/revision at the time it was approved by the Action Committee; modifications to the project/revision may have occurred subsequently.**

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which accounts for almost 85 percent of the entire energy supply; and secondly, the introduction of energy conservation policy for the drastic reduction of energy consumption in all branches of the national economy. Since, the country's proven reserve of coal per capita is rather small compared with world average, energy conservation is considered to be more realistic and reasonable than expansion of coal production in the longer term. The energy conservation potential is estimated at 30 to 50 per cent of current consumption with resulting reduction in ash emission and gaseous pollution by 20 per cent and environmental pollution by 30 to 80 per cent. To focus on adoption and assimilation of new energy saving technologies, improve energy management at macro and micro levels, and enhance public awareness of energy conservation issues, the Government requested UNDP assistance for critical interventions in support of its energy efficiency/conservation strategy.

Description of project

The immediate objectives of the project are to: (a) generate power more efficiently and modernize of thermal power plants with improved operation and maintenance procedures; (b) enhance national capability for rationalization of energy at the end-user subsector and improved macro and micro level energy planning; and (c) improve the capability in power system planning and development of nationwide power system operation and expansion plans based on accurate data analysis.

Project activities will include: (a) upgrading the efficiency of power generation of one 500MW Thermal Power Station (Pyongyang) and establishing modern operation and maintenance procedures established to demonstrate the application to other plants to improve reliability and efficiency of power supply, and reduce negative impact on environment; (b) establishing a Centre for the Rational Use of Energy with capability to conduct energy audits and maintain up-to-date energy supply and demand data; (c) completing an extensive nation-wide energy audit programme on 10 typical energy intensive plants; (d) creating three pilot projects for demonstration of new energy conservation technologies and management innovation in food processing, machine building and chemical industries; (e) making impact assessments and developing guidelines for replication in other industries; (f) establishing the Electric Power System Planning Centre and rendering it operational with appropriate power system planning techniques and tools; (g) developing an interactive power system planning models linked to 11 provincial centres; (h) defining a strategy for power system planning; and (i) establishing procedures for generation/transmission/distribution of power.

Inputs

UNDP will provide 48 work-months of consultancy including 20 work-months for a thermal power plant component, 18 work-months for energy rationalization component and 10 work-months for electric power system planning; three study tours on modern thermal power station, energy conservation technology/management experience and power system planning; 65 work-months of external fellowships on equipment for laboratory and control and monitoring system of one boiler/turbine set, energy conservation/energy management, network analysis, computer/data base management; a subcontract for design, procurement and supply of equipment for pilot demonstration of energy rationalization after implementing the industrial energy audit programme; and equipment for thermal power plant laboratory and for the electric power planning information system.

Financial data

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Personnel	961 000
Subcontract	496 000
Training	488 000
Equipment	730 000
Miscellaneous	65 000
Total	2 740 000